

EXHIBIT A  
PREVENTIVE MAINTENANCE CHECKLIST

EMERGENCY STANDBY GENERATORS/SWITCHES/CONTROLS CHECKLIST

Technician: \_\_\_\_\_

Location: \_\_\_\_\_ Time: \_\_\_\_\_ Date: \_\_\_\_\_ Hour Meter: \_\_\_\_\_  
Unit Mfg. \_\_\_\_\_ Model: \_\_\_\_\_ S/N: \_\_\_\_\_

General Task: Check for proper operation, excessive noise, vibration and temperature (before and after work is accomplished). Notate problems on checklist.

***D.C. ELECTRICAL SYSTEM***

1. Check battery terminals for corrosion; clean if necessary.
2. Check battery electrolyte levels if applicable. Add electrolyte as required.
3. Check specific gravity of the electrolyte in a 10% sample of the batteries (if applicable).
4. Check battery 25% of terminal-to-cell connection resistance; rehabilitate connections as required; add anti-corrosion grease to battery terminals and connections.
5. Measure and record individual battery cell and battery string float voltages.
6. Inspect all electrical wiring/components/relays/switches/cords/plugs for loose connections, scorched or frayed wires, and burnt contacts. Correct minor deficiencies as required. Notate other problems on checklist.
7. Shutdown mechanisms
8. Battery compartment/heater cooperation
9. Electrical starter/alternator generator

***A.C. ELECTRICAL SYSTEM***

1. Battery charger
2. Control panel/switchgear
3. A.C. generator voltage regulator
4. Inspect all electrical wiring/components/relays/switches/cords/plugs for loose connections, scorched or frayed wires, and burnt contacts. Correct minor deficiencies as required. Notate other problems on checklist.

***CONTROL PANEL***

1. Inspect all electrical wiring/components/relays/switches/cords/plugs for loose connections, scorched or frayed wires, and burnt contacts. Correct minor deficiencies as required. Notate other problems on checklist.
2. Clean inside of control panel with a vacuum or brush. When panel voltage is 120 voltage or greater, disconnect power prior to cleaning.
3. Check indicating lamps, thermometers, gauges, etc for proper operation.

### ***DIESEL ENGINE***

1. Check oil level in crankcase with dipstick; add oil as necessary. Check that crankcase heater is working.
2. Replace oil based on oil analysis recommendation not to exceed 2 years.
3. When replacing engine oil filter also replace the air filter.
4. Check radiator coolant level; notify PEM to add coolant if needed.
5. Drain and replace radiator coolant based on coolant analysis recommendation not to exceed 5 years.
7. Check battery and other related terminals for corrosion; clean if necessary.
8. Check belts for tension and wear; adjust or replace if required.
9. Check fuel level in tank. Notify PEM to refill if level is under 3/4 full.
10. Check electrical wiring, connections, switches, etc.; adjust or tighten as necessary.
11. Inspect all piping, hoses, fittings, valves, seals, flanges, connectors, tubing and packing for damage/leaks. Repair minor leaks as required. Notate other problems on checklist.

### ***GENERATOR***

1. Inspect all electrical wiring/components/relays/switches/cords/plugs for loose connections, scorched or frayed wires, and burnt contacts. Correct minor deficiencies as required. Notate other problems on checklist.
2. Inspect equipment structural components. Tighten or replace loose, missing, or damaged nuts, bolts and screws.
3. Check for proper alignment, clearances, and rotation of shaft and coupler (includes removing and reinstalling safety cover).
4. Perform 4 hour generator load test annually. Check for proper operation. Contractor may use City owned load banks for generators from 80 kW to 300 kW.
5. Check and record on local log the items applicable to the system being service.
6. Clean the exterior of the piece of equipment/system. Clean the surrounding area.

### ***AIR INDUCTION & EXHAUST SYSTEM***

1. Air cleaner units/oil bath and dry type
2. Air induction piping and connections
3. Turbocharger/blower
4. Exhaust manifold/piping/connections

### ***POWER UNIT***

1. Generator structure
2. Clutch assembly (power take off)
3. Coupling(s)

### ***LUBRICATION SYSTEM***

1. Engine oil level
2. Engine oil change with multi-grade oil that exceeds performance requirements by manufacturer. a. Use highest oil viscosity available to meet the requirements for the temperature at start-up.
3. Engine oil filter change (As needed by oil analysis not to exceed 2 years)
4. Engine oil sample for analysis (Annually)

- a. Oil analysis shall include wear analysis, oil condition, contamination levels from water, fuel, or coolant, oil viscosity and corrosion protection evaluation.
5. Crankcase pressure
6. Crankcase breather
7. Oil leaks (hoses, connectors)
8. Engine governor oil level/linkage (UG8)
9. Fan drive bearings
10. Generator bearings
11. Engine starter oiler (air type only)
12. Gauges and safety mechanism
13. Accessory drives

#### ***FUEL SYSTEM***

1. Fuel tank/day tank
2. Fuel filters-primary/secondary
3. Fuel system components/hoses/piping
4. Gauges and Safety mechanism
5. Condensation/water in fuel
  - a. City owned fuel filtering unit is available to filter and treat fuel and add additives.

#### ***COOLING SYSTEM***

1. Engine coolant level
2. Radiator core/heat exchanger
3. Coolant lines/connections/hoses & connections
4. Water jacket heater(s)
5. Coolant test analysis shall include glycol concentration for freeze and boil protection, pH, conductivity, identification of source of metal corrosion, scaling and contaminants and water hardness.
6. Prefer usage of high grade extended life coolant

Note: Contractor is responsible for indicator lights, indicator lamps, gauges, switches, relays, contactors, solenoids, coils, switches, relays, contactors, solenoids, coils, voltage regulators, sensors, fuses, pressure sensing switches, transformers, power supplies, battery cables and connections.

#### ***Monthly Transfer Tests SOW (performed once a month):***

1. Place switch in test mode
2. Verify generator starts and transfer occurs within preset limits
3. Visually inspect generator for proper operation during test period
4. Disengage test after 20 minutes and verify proper retransfer and shut down
5. Ensure all controls are left in auto mode

#### ***Annual Four-Hour Load Bank Test (performed once a year):***

- Disable generator
- Disconnect customer wires from generator output breaker\*
- Connect load bank cables to generator output breaker\*
- Start generator and turn on load bank to apply load
- Load bank generator per customer specification
- Once complete, disconnect load bank
- Reconnect customer wires to generator output breaker\*
- Place generator back in operation

- Ensure all control switches are in auto mode

Note: \*In some cases load bank will be connected inside the auto transfer switch instead of generator breaker.